

RECORD
OF

US-USSR JOINT PROJECT GROUP MEETING ON PROJECT II-3 STATINTL
"PLASTICS IN HYDROTECHNICAL CONSTRUCTION"

Denver, Colorado, USA

July 24, 1974

I

1. In accordance with the US-USSR Agreement on Cooperation in the Fields of Science and Technology signed May 24, 1972, and the decisions of the US-USSR Joint Commission on Scientific and Technical Cooperation, and the results of discussions of the first meeting of the US-USSR Joint Working Group on Scientific and Technical Cooperation in the Field of Water Resources signed September 30, 1972, the meeting of the US-USSR Joint Project Group on Plastics in Hydrotechnical Construction was held in Denver, Colorado, July 22-24, 1974.

2. Project coordinators who headed US and USSR groups:

For the US:

H. G. Arthur, Director of Design and Construction,
Bureau of Reclamation

For the USSR:

P. B. Sviklis, Director of Latvian Research Institute
of Hydraulics and Reclamation of the
USSR Ministry for Reclamation and Water
Management

The list of participants is attached (Appendix No. 1).

3. The following items were discussed:

- (1) Coordination of the detailed program of cooperation
to be executed during the period of 1974-76
- (2) Future trends in cooperation on the project
- (3) Preliminary itinerary for the visit of the US group
to the USSR in September 1974

II

1. As a result of exchange of opinions and information on the activities carried on in each country in the field of plastics application in hydrotechnical construction, the two groups

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discussed forms and topics of cooperation and are considering the detailed proposals by the USSR group as a base for a Joint Program of work, specified according to priority, to be carried out for the period 1974-76. (Appendix No. 2)

This program may be supplemented by additional topics, and detailed priorities may be selected after the visit of the US group to the USSR.

2. Some of the categories of work listed in Appendix No. 2 were included in the Results of Discussions of the first meeting of the US-USSR Joint Working Group on Scientific and Technical Cooperation in the Field of Water Resources as Projects II-4 "Waterproofing of Joints," and II-5 "Polymer Concrete." Both groups find it advisable to cooperate in these endeavors as appropriate work under application of Plastics in Hydrotechnical Construction and hereby request the approval of the US-USSR Joint Commission on Science and Technology to include them in the present project. These items are categories of Work No. 2, 3, and 4 in Appendix No. 2.

3. The groups agreed that during the next meeting in the USSR a program for cooperative work for the period up to 1980 would be drafted, discussed and coordinated.

4. The itinerary for the visit of the US group to the USSR in September 1974 was discussed and agreed upon (Appendix No. 3). This will be finalized and confirmed by the USSR group and forwarded to the US group 30 days prior to its departure for the USSR.

5. The USSR group became acquainted with the work of some of the water resources and reclamation organizations and manufacturing firms. They observed technical solutions and practices used at a number of projects. Visits were made to the following organizations and project sites:

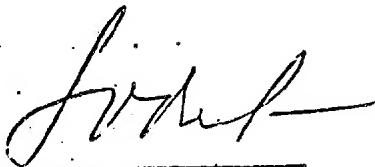
- Agricultural Research Service Coastal Plains Research Center, (Florence, S.C.);
- Visit to irrigated farms in the vicinity of Florence using modern irrigation and drainage practices;
- Hancor, Inc., manufacturing corrugated plastic drainage tubing;
- Arco Polymers, Inc., manufacturing polyethylene film;
- Bureau of Reclamation Columbia Basin Irrigation Project;
- Bureau of Reclamation Grand Coulee Dam and Third Powerplant construction site;
- R & G Sloane Co., manufacturing plastic fittings for pipe;
- Amoco Reinforced Plastics Company, manufacturing reinforced plastic mortar pipe;
- Gifford-Hill and Company, Inc., manufacturing plastic pipe;

- Tour of modern irrigated farms in the San Joaquin Valley utilizing plastic pipes;
- Bureau of Reclamation Engineering and Research Center visiting engineering laboratories and engaging in technical discussions on all work categories;
- Expo '74 World's Fair, Spokane, Washington, visiting water resources and environmental exhibits

6. It is understood by the coordinators that financing of all activities associated with the joint works as provided by the program, be realized in accordance with the decisions adopted by the US-USSR Joint Commission on Science and Technical Cooperation.

7. The project coordinators and the participants of this joint meeting state with satisfaction that the talks were fruitful and held in the atmosphere of friendship and mutual understanding and initiated personal contacts that will contribute to further development and extension of cooperation in the field of plastics application in hydrotechnical construction.

The present document was signed on July 24, 1974, in two copies, English and Russian, both copies being equally valid.



P. B. Sviklis
USSR Project Coordinator



H. G. Arthur
US Project Coordinator

LIST OF PARTICIPANTS AT THE MEETING ON
THE PROJECT II-3 "PLASTICS IN HYDROTECHNICAL CONSTRUCTION"

USSR Group:

P. B. Sviklis Coordinator of the Project, Director of Latvian Research Institute of Hydraulics and Reclamation of the USSR Ministry for Reclamation and Water Management

A. I. Kharin Deputy Director, Ukrainian Research Institute of Hydraulics and Reclamation of the USSR Ministry for Reclamation and Water Management

V. F. Blinov Laboratory Chief, Research Industrial Corporation "Plastics," Ministry of Chemical Industry

S. F. Korbut Secretary of working group on water resources. Administration for Scientific and Technical cooperation with foreign countries, USSR Ministry for Reclamation and Water Management

US Group:

H. G. Arthur Coordinator of the Project, Director of Design and Construction, Bureau of Reclamation

W. J. Ochs Water Management Engineer for Drainage, Soil Conservation Service

R. E. Philleo Chief, Concrete Branch; Office, Chief of Engineers

J. P. McGarvey Technical Director - Film Operations, Arco Polymers, Inc.

Ray Durazo Executive Director, Plastics Pipe Institute

G. N. Thorsky Chief, Division of Engineering Support, Bureau of Reclamation

APPENDIX NO. 2

JOINT PROGRAM OF WORK

FOR SCIENTIFIC AND TECHNICAL COOPERATION
OF THE USSR-USA WORKING GROUP ON PROJECT II-3 "PLASTICS IN HYDROTECHNICAL
CONSTRUCTION" FOR 1974-1976

<u>No.</u>	<u>Category of work</u>	<u>Activities in carrying out work by stages</u>	<u>Sponsors</u>	<u>Work comple-</u>	<u>Expected results</u>
			<u>USSR</u>	<u>USA*</u>	
1	Design and technology of constructing plastic film linings in canals and reservoirs. (a) Investigations of effective use of Plastic membranes in construction of water management systems under different environments.	1. Exchanging scientific technical information. 2. Exchanging investigation methods for physical and mechanical properties and aging processes of membranes. 3. Exchanging small quantities of various plastic materials for physical and mechanical tests. 4. Conducting complex laboratory investigations and working out technical requirements of plastic materials in use under differing environments.	Latvian Northern Ukrainian. NIIG-M.	III, 1974 1, 1975 IV, 1975	Reciprocal proposals on methods and apparatus in investigations of physical and mechanical properties of plastic membranes used in constructing seepage- controlling linings.

* Footnote: The Bureau of Reclamation will coordinate all categories of work, working with the U.S. Department of Agriculture, the Corps of Engineers, and the Society of Plastics Industry.

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No.

<u>Category of work</u>	<u>Activities in carrying out work by stages</u>	<u>USSR</u>	<u>Sponsors USA*</u>	<u>Work comple-tion date</u>	<u>Expected results</u>
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(Continued) 3

b. Improving technology of installing watertight plastic linings of canals and reservoirs.	5. Conducting technical investigations of performance of plastic materials under various climatic and soil conditions. 6. Exchanging data on research equipment and technical documents on plastic film test methods. 7. Exchanging information on results of physical and mechanical investigations. Discussion of results.	Larvian Ukrain. Northern NIG-M	III, 1976	III, 1975	Recommendations on technology of installation of soil-plastic and concrete-plastic linings; selecting the means of mechanization and fitting for membrane splicings.
1. Exchanging scientific technical information on placement technology for plastic watertight linings.	1. Exchanging scientific technical information on placement technology for plastic watertight linings.	Larvian Ukrain. Northern NIG-M	III, 1974	II-IV, 1975	Recommendations on technology of installation of soil-plastic and concrete-plastic linings; selecting the means of mechanization and fitting for membrane splicings.
2. Planning and construction in joint cooperation of experimental projects in both nations with use of Soviet and American plastic membranes.	Planning and joint consultations on construction and evaluation of results.	Larvian Ukrain. Northern NIG-M	III, 1974	II-IV, 1975	Recommendations on technology of installation of soil-plastic and concrete-plastic linings; selecting the means of mechanization and fitting for membrane splicings.
3. Study of construction technology of plastic membrane cut-offs, exchange of technical documents and work experience.	3. Study of construction technology of plastic membrane cut-offs, exchange of technical documents and work experience.	Larvian Ukrain. Northern NIG-M	III, 1975	II, 1975	Recommendations on technology of installation of soil-plastic and concrete-plastic linings; selecting the means of mechanization and fitting for membrane splicings.
4. Discussion of results in improvements of installation technology for plastic watertight lining and plastic membrane cutoffs.	4. Discussion of results in improvements of installation technology for plastic watertight lining and plastic membrane cutoffs.	Larvian Ukrain. Northern NIG-M	III, 1976	III, 1976	Recommendations on technology of installation of soil-plastic and concrete-plastic linings; selecting the means of mechanization and fitting for membrane splicings.
in USA					
in USSR					

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<u>Category of work</u>	<u>Activities in carrying out work by stages</u>	<u>USSR</u>	<u>Sponsors USA*</u>	<u>Work comple-tion date</u>	<u>Expected results</u> (Continued) No.
2	Utilization of polymers in soil stabilization on cut and embankment slopes. (a) Investigation of effectiveness of chemical materials in soil stabilization.	Latvian Ukrain.	VNIIG-M	IV, 1974	Recommendations on selection and use of chemical materials for soil stabilization.
3	Investigation of effectiveness of plastic pipes in drainage and irrigation structures.	1. Exchanging scientific technical information, standards and instructions on use Northern of plastic pipes in drainage and irrigation, including filter envelopes, for drainage pipe. 2. Purchasing plastic pipes of differing technical parameters (incl. porous), with required connection details. 3. Exchanging information and technical documents on application of non-destructive methods for quality control of plastic pipes. 4. Conducting detailed investigations of physical and mechanical properties considering their use under various environments. 5. Planning and constructing in joint cooperation experimental projects in both nations with use of Soviet and American Plastic Pipes: -planning and joint consultations on construction and evaluation of results 6. Investigation of more effective, economical filter envelopes for drainage pipes.	VNIG-M	III, 1975	Recommendations on rational application of different types of plastic pipes in drainage and irrigation structures. Improved methods for pipe joining, protective filters, and construction.
				II, 1975	
				III, 1976	

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Category of work	Activities in carrying out work by stages		
	USSR	Sponsors	Work completion date
7. Joint conference on results of conducted scientific research work: Finalizing proposals for future scientific technical cooperation.			III, 1976
4. Utilization of polymer-concrete in wear and cavitation resisting linings in hydraulic structures, and also in repairs of concrete units.			
(a) Investigation of polymer-impregnated concrete (polymer-pregnated portland cement concrete).			
1. Exchanging scientific technical information and documents on polymer-concrete use.	Latvian Ukrainian. NIIG-M.		I, 1975
2. Study of investigation methods and application experience with polymer-concretes in the USA and USSR construction.			II, 1975
3. Exchanging specimens and data on equipment to improve methods of physical and mechanical investigations.			III, 1975
4. Conducting complex physical and mechanical investigation of specimens.			III, 1976
5. Exchanging investigation methods for determining physical and mechanical properties of polymer-concretes, and discussions.			III, 1976
6. Development of recommendations for selecting monomers and synthetic resins, and also catalysts and promoters of polymerization for concrete impregnation. Discussion of recommendations.			III, 1976

No.

<u>Category of work</u>	<u>Activities in carrying out work by stages</u>	<u>Sponsors</u>	<u>Work comple- tion date</u>	<u>Expected results</u> (continued)
		<u>USSR</u>	<u>USA</u>	
(b) Investigation of polymer concrete: (concrete with polymer as the cementing agent)	<p>1. Conducting investigations of prototype polymer repair compositions.</p> <p>2. Preparation of a manual on execution of repairs with use of polymer compositions. Exchange of technical documents on execution of repair works.</p> <p>3. Conducting laboratory investigations of polymer-concretes with various resins and working out designs of prefabricated polymer-concrete lining of structures.</p>	Latvian Ukrain. NIF-M	IV, 1974 IV, 1975	Recommendations on the use of polymeric compositions in repairing hydraulic structures. Recommendation on the use of resins in repair of concrete elements of hydraulic structures.

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APPENDIX NO. 3

**PRELIMINARY ITINERARY
FOR THE VISIT OF US GROUP ON
"PLASTICS IN HYDROTECHNICAL CONSTRUCTION"
TO THE USSR**

Time of stay: September 12-29, 1974

September 12 Thursday	Arrive Moscow via Air France 724 from Paris - Accommodation
September 13 Friday	Conversation at the USSR Ministry for Reclamation and Water Management - Departure to Kiev
September 14 Saturday	Visit to Ukrainian Research Institute for Hydraulic Engineering and Reclamation discussion on polymer application
September 15 Sunday	Kiev - Sightseeing
September 16 Monday	Kiev - Familiarization with the work of the Ukrainian Design Water Resources Project Institute (Ukrgiprovodkhoz) and visit to the Research Institute of Building Industry
September 17 Tuesday	Kakhovka - Field trip to Kakhovka irrigation system (head structure)
September 18 Wednesday	Inspection of canal sections using different seepage control methods
September 19 Thursday	Arrive at Kherson and flight to Leningrad
September 20 Friday	Leningrad - Familiarization with the results of scientific research at the Northern Research Institute for Hydraulic Engineering and Reclamation
September 21 Saturday	Leningrad - Field trip to water resources project sites near Leningrad
September 22 Sunday	Leningrad - Sightseeing
September 23 Monday	Flight to Riga - Sightseeing
- September 24 Tuesday	Technical discussions on the project items

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September 25 Wednesday	Technical discussions and preparation of the draft for the joint general program up to 1980 - Departure to Moscow
September 26 Thursday	Moscow - Coordination of the draft with the US Embassy
September 27 Friday	Moscow - Signing the agreement and VDNKh sightseeing
September 28 Saturday	Moscow - Sightseeing
September 29 Sunday	Departure to US via PA 45 to New York City

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